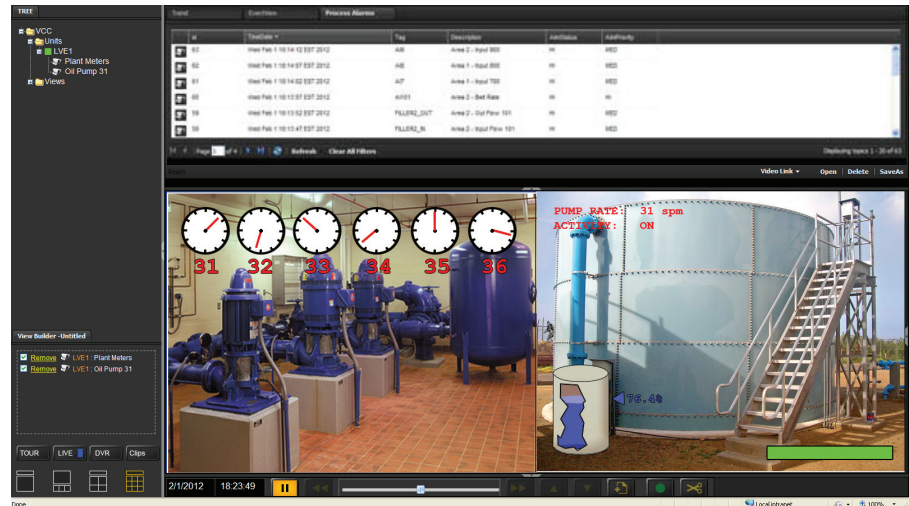


Longwatch™ Video Surveillance



- SCADA /HMI integration
- Distributed architecture
- Low-bandwidth
- Autonomous operation
- Digital video recording
- Event-based recording
- Natural extension of your process control system

Video Control Center/Longwatch Video Engine

The Longwatch Video Surveillance platform is a complete stand-alone video monitoring solution that can be integrated into existing process control systems. The system is composed of industrial grade software and video recording hardware along with a flexible 'thin client' viewer interface. The package includes multiple process control interfaces based on industry standards such as OPC and MODBUS TCP. These interfaces allow for complete control of the video system through existing SCADA, DCS, or MES systems. Longwatch Video Surveillance is comprised of two components: the Video Control Center (VCC) and Longwatch Video Engines (LVEs).

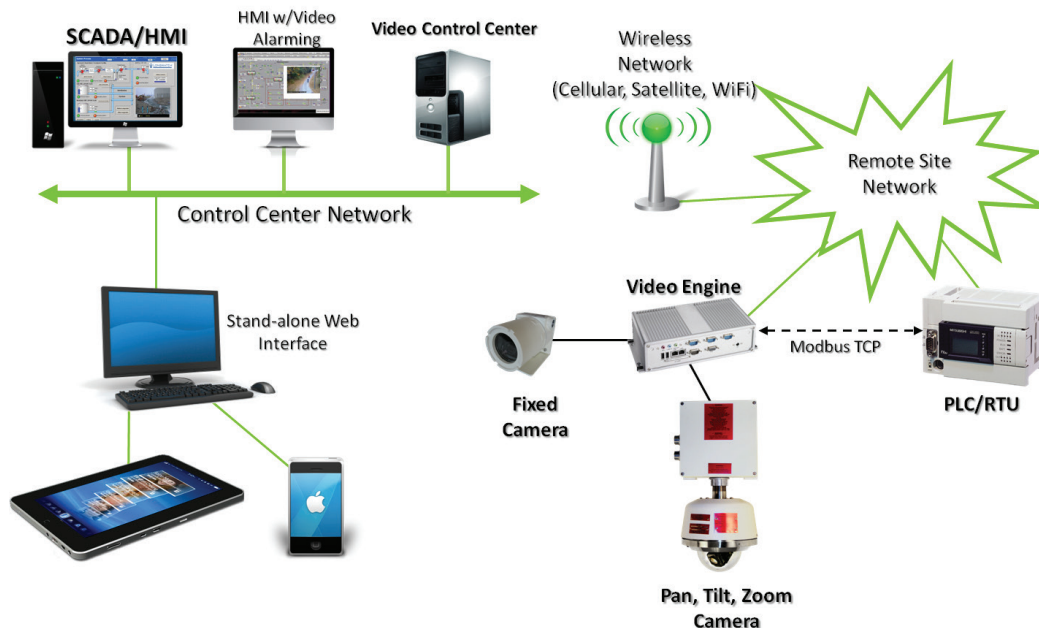
The VCC is provided for administration and viewing of all cameras on the network. The VCC provides an easy-to-configure and intuitive interface for online system configuration from a centralized location.

The LVE component is a DVR that can be provided on a pre-configured industrial-hardened appliance or as software-only to be installed in any Windows or virtual environment. Along with video recording and event based video capture, the LVE is designed to communicate with PLC or RTU devices. MODBUS TCP commands can be sent to the LVE to arm/disarm the system, turn recording on/off, take a snapshot or move the camera to a specific location.

The Longwatch Video Engine provides advanced bandwidth management allowing video to be sent back to the control room on networks as low as 9600 baud. Video Engines can be distributed to remote locations allowing all of your cameras to operate independently and autonomously without a constant network connection.

Complete Recording and Archiving Video System

Distributed System Architecture

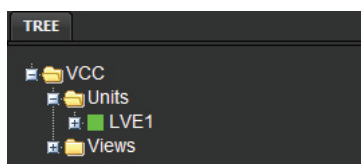


Longwatch Video Control Center (VCC)

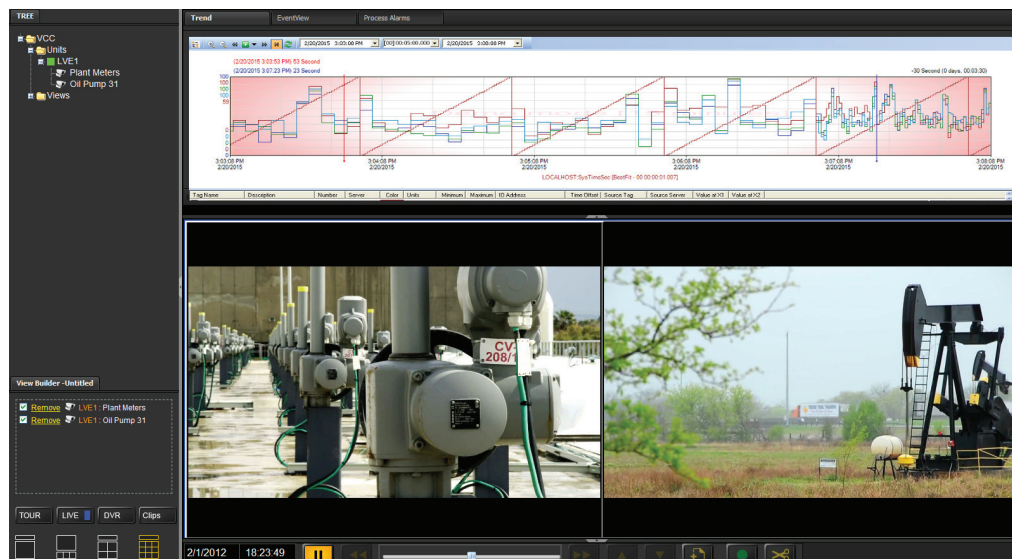
The Video Control Center software is the main portal into the Longwatch system. It contains a configuration interface for all Video Engines and cameras in the field. It provides a web interface for viewing video locally or remotely on laptops, tablets, and smart phones. Video viewed through the VCC can be streamed and stored at user-configurable resolutions and frame-rates to allow for extremely flexible bandwidth and storage infrastructure.



Configurable views allow you to easily locate past events while continuing to monitor the rest of your system.



An intuitive system architecture allows you to organize your complete video system regardless of size or complexity past events while continuing to monitor the rest of your system.



View live video or playback directly through your web browser

Remote Monitoring

Longwatch Video Engine (LVE)

The Longwatch Video Engine (LVE) software is the workhorse of the Longwatch system. It can be installed on any Windows operating system or virtual environment. The LVE provides “recording at the edge” capability, including:

- **Digital Video Recording (DVR)** - Uses local storage for safety, security, and scalability. DVR video can be uploaded to a central server for archiving and further viewing. Remote clip extraction helps you quickly identify issues.
- **User-configurable resolution and frame rates** - Multiple video streams are created from a single camera providing live video, snapshots, video clips, and recorded video all independently configurable for resolution, frame rate, and quality.
- **Event detection** - Events triggered by the PLC/RTU, hard wired inputs or built-in video analytics, are sent automatically to the Video Control Center to be dispersed to HMI screens, email addresses, or cellphones.
- **Autonomous operation** - The LVE keeps running even if the network is unavailable. That means you don't lose any video or events. When the network recovers, the LVE automatically uploads any events or video as required.
- **Multi-camera support** - The Longwatch Video Surveillance software supports different styles and models of cameras to suit your application needs. Legacy analog systems can also be integrated into the Longwatch environment.
- **Multi-network support** - IVC's Longwatch software leads the industry in network flexibility. The LVE can reside on a standard local area network, or placed on proprietary instrumentation networks. This enables you to stretch your infrastructure dollar, keep the system easy to support, and enables video to be transmitted from remote locations using existing, standard hardware.

The LVE software can run on your own computer or can be pre-loaded on one of a number of industrial edge computing devices available from IVC:



- Remote Video Engine (RVE)
 - 500 GB storage
 - 6 camera connections



- Micro HD
 - 500 GB storage
 - 2 camera connections



- Micro LPX
 - 8 GB expandable storage
 - Low Power, Extreme Temperature rating
 - 7 W Power; -40° C to 70° C
 - 2 camera connections

Transfer video as small as
2.5Kb per frame!

Snapshot Mode / Event Clips

Each remote site is individually configured to work within the available bandwidth using a feature called 'Snapshot Mode'. When enabled, Snapshot Mode communicates with your centralized Video Control Center and transfers still frames of your remote locations. Upon an event or alarm, the Video Engine automatically notifies the Video Control Center and

begins sending a full video clip across the network in small bundles. These video clips can be as low as 2.5 KB/frame. Once the video has been fully sent, a notification appears and the video event clip can be played from the Longwatch Viewer interface or on operator screens.

Advanced Features

SCADA/HMI Integration

Longwatch stores video in industry-standard formats allowing for complete and open integration across your pre-existing system. These include:

- **HTTP** - Use a web browser to view and playback video, control cameras, view alarm information, and for system configuration.
- **OPC Data Access Server** - Bidirectional interface with SCADA system. Alarms through Longwatch appear in existing alarm summary screens. Events triggered on the SCADA system can control camera views or control other connected devices, such as lights, doors, or PAGA systems.
- **MODBUS Gateway Server** - Bidirectional interface with PLCs and RTUs. Alarms through Longwatch can be transferred directly to industrial control hardware for proper transmission to the SCADA or DCS system. The PLC or RTU can directly control camera views or control other connected devices, such as lights, doors, or PAGA systems.
- **Video Controls** - Drop Longwatch video windows directly onto your pre-existing operator screens. View live video and event-driven video clips with integrated Pan-Tilt-Zoom controls.
- **Event Clips** - Video clips are stored as open format .avi files. Play, edit, and share your video using commonly available media players on any system with no additional software to install.
- **Email Notification** - Events and alarms along with video can be sent directly to operator screen, email addresses, or smart phones for immediate assessment and quick response.

Security Features

Longwatch Video Surveillance comes embedded with several varieties of security features including:

- **Granular Security Control** – Using Windows Security, regulate users and cameras access and control.
- **Access Control Manager** – The Longwatch system communicates directly to access control devices, HID readers, and key pads. Longwatch is able to read badges and control functions based on user levels, open doors, create camera controlled alarms, and log the event. Each access can be recorded for later review by authorized users.

► system requirements

Minimum System Requirements	Video Control Center (VCC)	Longwatch Video Engine (LVE and CRE) Max 4 per server	Client (LWViewer & View Station)
Minimum Hardware Requirements			
CPU	Core i7 or Server class Xeon - Minimum of 2 cores	Core i7 or Server class Xeon - Minimum of 2-4 cores for 1-2 engines, 4-8 cores for 3-4 engines	Core i7 or equivalent
Available Hard Disk Space	50 - 100 GB depending on # of event clips	For LVE - ~12 GB/day/camera for medium resolution/frame rate For CRE - ~1-2 GB/day/console	N/A
Available Memory	8 GB	8 GB per engine	16 GB or more
Networking	1 Gb	1 Gb	1 Gb
Software Components Required			
Operating System	Windows 10 Professional Windows 11 Professional Windows Server 2019 Windows Server 2022	Windows 10 Professional Windows 11 Professional Windows Server 2019 Windows Server 2022	Windows 10, 11 Professional Windows Server 2019, 2022
Browser	Microsoft Edge in IE Mode	Microsoft Edge in IE Mode	Microsoft Edge in IE Mode
Note - for smaller systems the VCC and LVE can reside on the same hardware. Size accordingly. Note - SQL Server 2008 R2 Express is installed as part of the VCC install			

► ordering information

To simplify your installation, IVC offers computers pre-configured with the appropriate View Station Software. Ask your IVC representative about this option.

Part Number	Description
VCC	Video Control Center
LVE	Longwatch Video Engine - 12 cameras
RVE	Remote Video Engine - 6 cameras
MICRO HD	Micro Video Engine - 2 camera
MICRO LPX	Low-Power Extreme Temperature Video Engine - 2 cameras



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